

### **REMARKS**

The undersigned thanks Examiner Truong for the courtesy of a telephone conference on December 12, 2006 to discuss the content of the Office Action of September 12, 2006. This summary outlines essentially the entirety of the discussion of December 12, 2006, thus is a complete report of the substance of the interview as required by 37 C.F.R. §1.133.

To summarize the telephone conference, it is believed the Examiner does not question the clarity, enablement, or any other requirements of 35 U.S.C. §112 of any of the pending claims, but believes that at least claims 1-34 recite structures inherently present in the prior art of record. In the conversation, the Examiner seemed to suggest that the Applicant should amend the claims to insert methods of preparation which form structures as recited in the claims, to further clarify distinctions from the prior art. If this is the case, then Applicant does not agree that this is required for demonstration of distinction from the prior art, as the claims contain sufficient structure such that those of ordinary skill in the art would understand their scope (noting no rejections under 35 U.S.C. §112 stand). Furthermore, the claims do not recite subject matter which the Patent Office has demonstrated is necessarily inherently found in the prior art, which is a requirement of a successful 35 U.S.C. §102 rejection based upon inherency (note also that no rejections under 35 U.S.C. §102 stand).

Applicants respectfully request reconsideration. Claims 1-35 and 37-47 were previously pending in this application. Claims 2, 14 and 31 have been amended. Support for the amendments can be found in the specification and figures (see page 13, line 29 – page 14, line 2; page 3, line 6 – page 3, line 21; and FIG. 1G, for example). Claims 1-35 and 37-47 remain pending with claims 1, 31, and 35 being independent. No new matter has been added.

#### **Rejection of Claims 1-34 under 35 U.S.C. 103(a)**

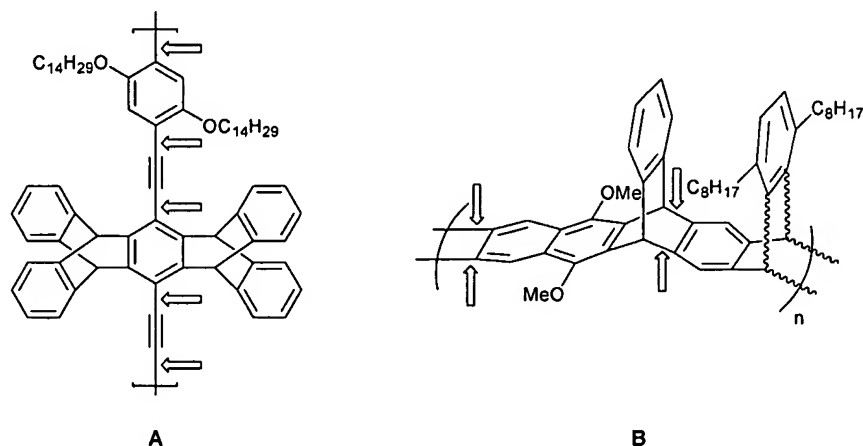
Claims 1-34 were rejected under 35 U.S.C. §103(a) as being unpatentable over *J. Am. Chem. Soc.* 1998, Vol. 120(46) (“Yang”). Applicant respectfully traverses this rejection.

Regarding claim 1, Yang fails to teach or suggest a composition comprising a ladder polymer or ladder oligomer, said ladder polymer or oligomer comprising an iptycene, wherein the

ladder polymer or oligomer is a polymer or oligomer having a backbone that can only be severed by breaking at least two bonds, as described in claim 1. Applicant disagrees with the assertion made by the Patent Office that the Yang reference discloses ladder polymers or ladder oligomers. The polymers disclosed in Yang are not ladder polymers or oligomers, but are poly(phenylene ethynylene)s which have a backbone that can be severed by breaking only one bond. Although the Office Action points to the mechanism on page 11866 and Figure 1 in Yang as examples of ladder polymers or ladder oligomers, Applicant notes that the mechanisms on page 11866 show only the syntheses of various iptycene-containing monomers, which are not a polymers, and Figure 1 shows only the X-ray crystal structure of a monomeric pentyptycene structure, which is not a polymer.

To further illustrate the distinction between a ladder polymer or oligomer having a backbone that can only be severed by breaking at least two bonds (as recited in claim 1), and polymers that do not meet this structural limitation (such as polymers of the art of record), Figure 1A shows an example of a polymer disclosed in Yang (see Chart 1), wherein each arrow indicates an individual single bond that may be broken to sever the polymer backbone. By contrast, Figure 1B shows an example of a ladder polymer or ladder oligomer as disclosed in the present application (see FIG. 6B), wherein the arrows indicate *pairs* of single bonds that may be broken to sever the polymer backbone. No other disclosure can be found in Yang for a polymer or oligomer having a backbone that can only be severed by breaking at least two bonds.

Figure 1. Polymer A shows a poly(phenylene ethynylene) as disclosed in the Yang reference. Polymer B is a ladder polymer or ladder oligomer as disclosed in the present application.



Regarding claim 31, Yang fails to teach or suggest a composition comprising a first, porous, shape persistent polymer and a second, flexible polymer forming an interpenetrating network, the second polymer permeating the pores of the first polymer, wherein the first polymer and the second polymer have different structures and are not covalently bound to each other, as described in amended claim 31. While Yang discloses the incorporation of pentyptycene groups within a conjugated polymer backbone, Yang does not describe the combination of two polymers having different structures to form an interpenetrating network.

Moreover, Applicant sees no suggestion or motivation in Yang, or elsewhere in the prior art, to modify the teachings of these references to obtain a composition that includes the aforementioned claim limitations. Because each claim limitation is not taught or suggested by Yang and there is no reasoning presented in the Office Action as to why one of ordinary skill in the art would modify the teachings of Yang to obtain the recited composition, claims 1 and 31 are patentable over Yang. Claims 2-30 depend from claim 1 and claims 32-34 depend from claim 31 and, therefore, are also patentable over the Yang for at least this reason.

Accordingly, withdrawal of the claim rejections on this ground is respectfully requested.

#### Rejection of Claims 35 and 37-47 under Nonstatutory Obviousness-type Double Patenting

Claims 35 and 37-47 were rejected under the judicially created doctrine of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-18 of U.S. Patent No. 6,783,814 (Swager et al.).

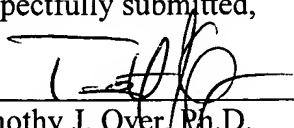
Without conceding the correctness of the Examiner's position and rather in the interest of expediting prosecution, Applicant submits herewith a Terminal Disclaimer over U.S. Patent No. 6,783,814, signed by Timothy J. Oyer.

In view of this submission, the Examiner is respectfully requested to reconsider and withdraw the rejection.

In view of the above amendment, Applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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